O. H. M. S.

W. J. Gerald

Deputy Minister.

LABORATORY

OF THE

INLAND REVENUE DEPARTMENT

OTTAWA, CANADA.

BULLETIN No. 152

TINCTURE OF IODINE

744—1

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TINCTURE OF IODINE

OTTAWA, April 15, 1908.

W. J. GERALD, Esq.,
Deputy Minister of Inland Revenue.

SIR,—I have the honour to report upon a collection of 75 samples of Tincture of Iodine, obtained throughout the Dominion in February last.

These have been examined in this Laboratory, with the following results:—

	Samples.
Genuine	
Adulterated (containing no free Iodine)	60
" (containing methyl) alcohol	1
" (containing methyl alcohol) and being too low in Iodine	9
	5
Total	75

This is the first occasion upon which Tincture of Iodine has been made the subject of Departmental inspection, and the following explanatory remarks may be necessary.

The British Pharmacopœia prescribes the following formula (Edition 1898).

	Imperial.	Metric.
Iodine	$\frac{1}{5}$ ounce	25 grammes.
Potassium Iodide	$\frac{1}{5}$ "	25 "
Distilled water	$\frac{2}{5}$ fl. "	25 cubic centimetres.
Alcohol (90 per cent) a sufficient quantity.		

Place the Iodine and Potassium Iodide in a bottle with the distilled water; when solution has been effected, add a sufficient quantity of the Alcohol to produce one pint (or one thousand cubic centimetres) of the Tincture.

The Tincture made from this formula contains free Iodine, 1 part in 40 parts, or 2.5 per cent.

Many foreign pharmacopœias prescribe a Tincture made without Potassium Iodide, and with much larger amounts of free Iodine than the above. Thus, the French Codex prescribes 1 part in 12 parts (= 8. 5 per cent) of Iodine; the United States Pharmacopœia prescribes 1 part Iodine in 14.3 (= 7.0 p.c.)

Tinctures of Iodine are prone to decomposition, and this is particularly true of those made without Potassium Iodide. These last are unsuited for internal use, since their Iodine is precipitated more or less, on dilution with water.

While many pharmacopœias authorize a higher percentage of free Iodine than does the British Pharmacopœia, none prescribe a lower amount. I have considered it permissible to allow samples to pass as genuine, in which the free Iodine does not fall below 2 per cent.

Five samples are found to contain less than 2 per cent. of free Iodine; and it is noteworthy that all of these are made with Wood spirit (methyl alcohol) instead of Ethyl Alcohol, as prescribed by all the pharmacopœias. One sample (No. 26394) contains no free Iodine. Of course such a Tincture possesses none of the discutient properties of the pharmacopœal tincture. A decolorized tincture is described, unofficially, in the British Pharmacopœia, and in the United States (National) Dispensary, 1896; but should not be confounded with Tincture of Iodine.

Fourteen samples are found to contain methyl alcohol, in place of ethyl alcohol, as prescribed by all pharmacopœias.

The following is quoted from the 5th Edition of the National Dispensatory (U.S.A.) p. 157:—"The vapours of methyl alcohol, diffused in the air, give rise to headache, "dizziness, nausea and loss of appetite. It was at one time employed as a stimulant in "pulmonary consumption, chronic catarrh, dyspepsia, and verminous affections, but is "now entirely disused."

There can be no doubt that the substitution of Wood Spirit (methyl alcohol) for Ethyl alcohol, constitutes an adulteration under the Act.

I beg to recommend the publication of this report as Bulletin No. 152.

I have the honour to be, Sir,
Your obedient servant,

A. McGILL,
Chief Analyst.

EXAMINATION OF TINCTURE OF IODINE AT THE INLAND

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
'908.						
DISTRICT OF NOVA SCOTIA—						
Feb. 18	Tincture of Iodine ..	33[illegible]	National Drug Co., Halifax, N.S.	6 oz....	50	Vendors .....
" 18	" ..	33608	Jas. Walsh, Halifax, N.S.	6 "	60	Vendor .....
" 18	" ..	33609	A. A. Thompson, Halifax, N.S.	6 "	60	" .....
" 21	" ..	33610	R. M. Jackson, New Glasgow, N.S.	6 "	50	" .....
" 22	" ..	33611	R. J. McKenzie, Pictou, N.S.	6 "	60	" .....
DISTRICT OF PRINCE EDWARD ISLAND—						
Feb. 17	Tincture of Iodine ..	31225	G. E. Hughes, Charlottetown.	6 oz....	90	G. E. Hughes, Charlottetown.
" 18	" ..	31226	P. N. Enman, Summerside	6 "	75	P. N. Enman, Summerside
" 18	" ..	31227	Wm. Kennedy, Summerside	6 "	60	Can. Drug Co., St. John, N.B.
" 19	" ..	31228	Jardine & Bernard, Kensington.	6 "	60	Nat. Drug Co., Halifax...
" 20	" ..	31229	Reddin Bros., Charlottetown.	6 "	60	Reddin Bros., Charlottetown.
DISTRICT OF NEW BRUNSWICK—						
Feb. 12	Tincture of Iodine ..	29644	Nat. Drug & Chem. Co., Ltd., Mill St., St. John, N.B.	6 oz....	60	Nat. Drug & Chem. Co., Ltd., St. John, N.B.
" 20	" ..	29645	Sussex Mercantile Co., Ltd., Main St., Sussex, N. B.	6 "	90	Sussex Mercantile Co., Ltd., Sussex, King's Co., N.B.
Mar. 9	" ..	29646	D. W. C. Stevens, Main St., Woodstock, N.B.	6 "	60	D. W. Stevens, Vendor...
" 10	" ..	29647	C. A. McKeen, Woodstock, N.B.	6 "	75	C. A. McKeen, Vendor...
" 10	" ..	29648	Garden Bros., Woodstock..	6 "	60	Garden Bros., Vendors ...
DISTRICT OF QUEBEC—						
Feb. 10	Tincture of Iodine ..	26378	A. E. Michon, Montmagny	6 oz....	60	W. Brunet & Cie, Quebec.
" 12	" ..	26390	E. O. Cloutier, Rivière du Loup en Bas.	6 "	60	Lyman & Son Co.....
" 12	" .	26393	Dr. F. E. Gilbert, Fraserville.	6 "	60	" .....
" 12	" ..	26394	Dr. T. Kane, Rivière du Loup Station.	6 "	60	" .....
" 12	" ..	26395	" " ..	6 "	60	" .....

REVENUE LABORATORY, 317 QUEEN ST., OTTAWA, ONT.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Iodine per 100 CC.	Alcohol per 100 CC.	Distillate to 5 Volumes.					
			Density.	Alcohol (weight.)	Refractometer 20° C.	Equivalent Ethyl Alcohol.	Methyl Alcohol.	
			p. c.	p. c.		p. c.	p. c.	
R. J. WAUGH, INSPECTOR.								
	2·46	83·05	0·9796	13·46	37·7°	13·48	None	Genuine.
	5·02	85·40	0·9886	6·86	25·5°	6·77	"	Genuine. This Distillate was made to 10 volumes.
	2·41	85·40	0·9791	13·85	38·6°	13·97	"	Genuine.
	2·69	81·20	0·9800	13·15	37·2°	13·22	"	"
	2·36	84·45	0·9793	13·69	38·6°	13·97	"	"
I. MOORE, INSPECTOR.								
	2·41	95·90	0·9771	15·58	24·0°	.....	*16·24	Adulterated with wood alcohol.
	2·22	81·20	0·9799	13·23	38·6°	13·97	None	Genuine.
	2·01	85·85	0·9790	13·92	39·0°	14·19	"	"
	5·52	89·60	0·9879	7·33	26·3°	7·22	"	" Distillate made to 10 volumes.
	3·57	85·85	0·9790	13·92	38·3°	13·79	"	Genuine.
J. C. FERGUSON, INSPECTOR.								
	6·60	89·60	0·9784	14·45	40·5°	14·48	"	Genuine.
	2·92	84·45	0·9792	13·77	38·5°	13·96	"	"
Mixture by Vendors, per B. P. Formula.	2·80	93·15	0·9777	15·12	23·6°	....	*15·87	Adulterated with wood spirit.
"This sample may be a little stronger than B. Form No."	2·66	87·95	0·9786	14·27	39·0°	14·19	None	Genuine.
Mixture by Vendors, per B. P. Formula.	3·83	79·30	0·9803	12·92	37·2°	13·22	"	"
[illegible]ELAND, INSPECTOR.								
	6·67	85·88	[illegible]·90	13·92	39·0°	14·19	"	Genuine.
	2·46	84·00	0·9794	13·62	38·0°	13·64	"	"
	2·56	82·60	0·9797	13·38	37·3°	13·28	"	"
	None	53·85	0·9860	8·68	29·0°	8·64	"	No free iodine. Adulterated as containing no free iodine.
	2·63	85·50	0·9795	13·54	38·3°	13·79	"	Genuine.

EXAMINATIONS OF TINCTURE OF IODINE AT THE LAND

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher, as given by the Vendor.
1908.						
DISTRICT OF ST. HYACINTHE—						
Feb. 13	Tincture of Iodine.	27951	Dr. Daignault, Acton Val		50	Lyman Sons & Co., Montreal.
" 18	"	27952	Frazers Drug Store, Sherbrooke.	6 "	50	Vendor
" 19	"	27953	A. E. Baldwin, Coaticook..	6 "	50	A. W. Sanborn, New York
" 21	"	27954	Dr. A. G. H. Beique, Magog	6 "	50	Vendor
" 24	"	2795	Gast. St. Jacques & Cie, St. Hyacinthe.	6 "	50	"
DISTRICT OF MONTREAL—						
Feb. 14	Tincture of Iodine .	32569	Leo. G. Ryan, 545 Notre Dame West, Montreal.	6 oz	50	Vendor
" 14	"	32570	S. F. Emery, 607 Notre Dame West, Montreal.	6 "	50	Not known
" 18	"	32	Irs. St. Louis, Druggist, Valleyfield, P.Q	6 "	60	Lyman Sons & Co., Montreal.
" 19	"	32	Moisan, 661 St. Lawrence B., Montreal.	6 "	60	Not known
" 22	"	32573	Ranson Pharmacy Co., 407 St. Joseph St., Lachine, P.Q.	6 "	60	National Drug & Chem. Co.
DISTRICT OF OTTAWA—						
Feb. 17	Tincture of Iodine..	34121	W. A. Cameron, Renfrew..	6 oz.	50	Vendor
" 18	"	34122	M. Patterson, Almonte ...	6 "	60	"
" 21	"	34123	G. F. Brethour, Ottawa....	6 "	75	"
" 21	"	34124	P. J. Nolan, Ottawa	6 "	75	"
" 21	"	34125	Allan & Cochrane, Bank St., Ottawa.	6 "	75	Vendors

REVENUE LABORATORY 317 QUEEN ST., OTTAWA, ONT.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Iodine per 100 CC.	Alcohol per 100 CC.	Distillate to 5 Volumes. Density.	Alcohol (Tweedale)	Refractometer 20° C.	Equivalent Ethyl Alcohol.	Methyl Alcohol.	
			p.c.	p.c.		p.c.	p.c.	
J. C. ROULEAU, INSPECTOR.								
Labeled Tr. Iodine, Poison. Prepared according to British Pharmacopœia by Lyman Son & Co., Montreal.	2·32	82·15	0·9798	13·31	37·4°	13·33	None.	Genuine.
From ½ gal. bottle marked "Tr. Iodi.	2·41	86·85	0·9788	14·09	39·0°	14·19	"	"
Bottled labeled Tr. Iodi	2·52	87·40	0·9787	14·18	39·2°	14·30	"	"
Bottled labeled Tr. Iodine Co. made according to Pharm. Anglaise.	2·83	81·65	0·9799	13·28	37·3°	13·28	"	"
Bottled labeled Tr. Iodine made according to Pharm. Anglaise.	2·59	86·85	0·9786	14·27	39·2°	14·30	"	"
J. J. COSTIGAN, INSPECTOR.								
	2·59	86·30	0·9789	14·00	39·0°	14·19	None.	Genuine.
	1·94	96·18	0·9770	15·63	24·0°	....	16·18	*Adulterated, containing wood spirit and too low iodine.
	2·51	81·20	0·9804	12·85	37·2°	13·22	None.	Genuine.
	2·69	94·90	0·9773	15·42	23·5°	....	15·42	*Adulterated, as containing wood spirit.
	4·87	97·85	0·9766	15·95	24·5°	....	16·33	* " "
J. A. RICKEY, INSPECTOR.								
Taken from stock bottle on shelf.	2·84	95·4	0·9772	15·50	24·0°	.....	16·17	*Adulterated, as containing wood spirit.
"	1·08	97·45	0·9768	15·83	24·5°	....	16·94	*Adulterated, as containing wood spirit and too low in iodine.
Vendor said sample was the ordinary B. Tincture of Iodine.	2·10	89·05	0·9784	14·45	39·2°	14·31	None.	Genuine.
Taken from stock bottle on shelf labeled Tr. Iodine.	2·47	85·40	0·9794	13·62	38·1°	13·69	"	"
Bottles labeled Tr. Iodine, Poison. Allen & Cochrane, 3 stores, Red Cross Druggists, Ottawa, Ont.	2·55	84·00	0·9788	14·09	38·8°	14·08	"	"

EXAMINATIONS OF TINCTURE OF IODINE AT THE INLAND

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Cost. Quantity.	Cost. Cents.	Name and Address of Manufacturer or Furnisher as given by the Vendor.
1908.						
			DISTRICT OF KINGSTON—			
Feb. 10	Tincture of Iodine	33067	W. W. Gibson, King St., Kingston.	6 oz.	40	W. W. Gibson, Kingston.
" 10	"	33068	H. Wade, King St., Kingston.	6 "	90	H. Wade, Kingston
" 10	"	33069	H. Skinner, Princess St., Kingston.	6 "	60	Nat. Drug Co., Montreal.
" 10	"	33070	A. P. Chown, Princess St., Kingston.	6 "	75	A. P. Chown, Kingston
" 10	"	33071	L. T. Best, Princess St., Kingston.	6 "	60	L. T. Best, Kingston
			DISTRICT OF TORONTO—			
Feb. 24	Tincture of Iodine.	35033	J. A. Zimmerman, corner Bartan & Wentworth, Hamilton.	6 oz	50	Vendor.
" 24	"	35034	A. C. Drewery, 108 James St., south, Hamilton.	6 "	75	"
" 27	"	35035	P. M. Dwyer, 53 St. Paul St., St. Catherines.	6 "	50	"
" 28	"	35036	A. Land, Main St., Niagara Falls, south.	6 "	50	"
Mar. 3	"	35037	The Albert Thompson Co., Ltd., Toronto.	6 "	45	Vendors
			DISTRICT OF LONDON—			
Feb. 11	Tincture of Iodine.	30464	Alfred Dunlop, Druggist, Goderich.	6 oz	60	Alfred Dunlop, Druggist, Goderich.
" 14	"	30474	Charles Abrahart, Druggist, Seaforth.	3 "	45	Charles Abrahart, Druggist, Seaforth.
" 25	"	30480	W. A. McIntire. Druggist, St. Mary's.	6 "	60	Vendor
" 29	"	30490	R. A. Hunter, Druggist, Listowell.	6 "	60	"
" 28	"	30486	W. B. Barley, Druggist, Mitchell.	6 "	75	"
			DISTRICT OF WINDSOR—			
Feb. 18	Tincture of Iodine.	34501	H. O. Fleming	6 oz.	60	H. O. Fleming, Windsor.
" 19	"	34512	G. H. Gunn & Co., Chatham.	6 "	35	G. H. Gunn & Co., Chatham.
" 19	"	34513	I. L. Davis, Chatham.	6 "	60	I. L. Davis, Chatham.
" 20	"	34519	Meek & Vening, London.	6 "	60	Meek & Vening, London.
April 10	"	34529	E. W. Boyle, London, east	6 "	60	Vendor

REVENUE LABORATORY, 317 QUEEN ST., OTTAWA, ONT.

Inspector's Report.	Results of Analysis.							Remarks and Opinion of the Chief Analyst.
	Iodine per 100 CC.	Alcohol per 100 CC.	Distillate to 5 Volumes.					
			Density.	Alcohol (weight.)	Refractometer 20° C.	Equivalent Ethyl Alcohol.	Methyl Alcohol.	
			p. c.	p. c.		p. c.	p. c.	
J. HOGAN, INSPECTOR.								
.....	2·59	81·20	0·9801	13·08	38·6°	13·97	None.	Genuine.
.....	2·92	85·85	0·9793	13·69	38·5°	13·92	" .	"
.....	2·74	76·98	0·9809	11·97	22·2°	.....	13·41	*Adulterated, containing wood spirit.
.....	2·51	54·55	0·9858	8·79	22·2°	.....	13·41	* " "
.....	1·40	86·55	0·9788	14·09	23·1°	.....	14·80	* " " and too low in iodine.
H. J. DAGER, INSPECTOR.								
Sample taken from stock bottle on shelf.	2·89	86·85	0·9788	14·09	39·0°	14·19	None.	Genuine.
Sample taken from dispensing room.	2·57	99·85	0·9764	16·15	24·2°	... .	16·48	*Adulterated, containing wood spirit.
Sample taken from stock bottle on shelf.	2·44	94·90	0·9873	7·73	27·4°	7·78	None.	Genuine. Distillate was made to 10 volumes.
" " ..	5·59	88·80	0·9882	7·13	25·8°	6·94	" .	Genuine. Distillate was made to 10 volumes.
Sample taken from bottle on shelf of shop.	0·50	82·35	0·9797	13·25	25·9°	....	19·34	*Adulterated, containing wood spirit, and being too low in iodine.
T. KIDD, INSPECTOR.								
Made by vendor in his shop.	2·93	86·30	0·9790	13·92	38·3°	13·80	None.	Genuine.
" " ..	4·52	88·00	0·9883	7·07	25·5°	6·78	" .	" Distillate made to 10 volumes.
.....	1·86	89·62	0·9783	14·54	24·1°	... .	16·26	*Adulterated with wood spirit, and too low in iodine.
.....	2·45	84·00	0·9794	13·62	38·3°	13·80	None.	Genuine.
.....	6·35	88·80	0·9882	7·13	26·0°	7·06	" .	" Distillate made to 10 volumes.
J. TALBOT, INSPECTOR.								
.....	2·80	85·40	0·9790	13·92	38·6°	13·97	None.	Genuine.
.....	2·30	84·90	0·9788	14·09	39·0°	14·19	" .	"
.....	2·21	84·90	0·9792	13·77	38·2°	13·74	" .	"
.....	2·03	81·20	0·9800	13·15	37·0°	13·10	" .	"
.....	2·46	75·60	0·9812	12·23	35·7°	12·30	" .	"

REVENUE LABORATORY, 317 QUEEN ST., OTTAWA, ONT

Inspector's Report.	Results of Analyst.							Remarks and Opinion of the Chief Analyst.
	Iodine per 100 CC.	Alcohol per 100 CC.	Distillate to 5 Volumes.					
			Density.	Alcohol (weight.)	Refractometer 20° C.	Equivalent Ethyl Alcohol.	Methyl Alcohol.	
			p.c.	p.c.		p.c.	p.c.	
A. C. LARIVIERE, INSPECTOR.								
....	2·83	81·20	0·9800	13·15	37·4°	13·33	None.	Genuine
....	2·67	80·75	0·9801	13·08	37·2°	13·22	"	"
....	2·63	81·65	0·9799	13·23	37·3°	13·26	"	"
....	3·13	83·50	0·9795	13·54	38·1°	13·69	"	"
....	2·67	86·30	0·9789	14·00	39·0°	14·19	"	"
R. W. FLETCHER, INSPECTOR.								
....	2·48	87·40	0·9787	14·18	39·3°	14·35	None.	Genuine.
....	2·72	80·25	0·9802	13·00	36·2°	12·64	"	"
....	2·84	83·50	0·9795	13·54	37·4°	13·33	"	"
....	2·72	84·00	0·9794	13·62	38·2°	13·74	"	"
This sample is over standard.	3·59	84·00	0·9794	13·62	38·0°	13·64	"	"
J. F. POWER, INSPECTOR.								
....	2·38	84·45	0·9791	13·85	39·2°	14·31	None.	Genuine.
....	6·28	81·80	0·9799	13·23	37·2°	13·22	"	"
....	3·16	85·85	0·9781	14·73	39·5°	14·46	"	"
....	2·85	93·15	0·9777	15·13	24·0°	.....	16·25	*Adulterated. Containing wood spirit.
....	2·48	80·25	0·9802	13·00	36·2°	12·64	None.	Genuine.
D. O. SULLIVAN, INSPECTOR.								
Manufactured on premises of Vendor.	2·39	84·00	0·9794	13·62	38·0°	13·64	None.	Genuine.
"	2·84	77·45	0·9808	12·54	35·9°	12·49	"	"
"	2·65	77·45	0·9808	12·54	35·4°	12·19	"	"
"	2·16	84·45	0·9793	13·69	38·5°	13·92	"	"
"	2·71	83·05	0·9796	13·46	37·5°	13·37	"	"

* The alcohol is determined by use of Hehner's tables, as authorized for the Inland Revenue. These are constructed for Ethyl alcohol, taken as having a density of 0.7938 at 15·5° C. and lead to slight errors in cases where methyl alcohol is present.